

**Notice of Allowability****Application No.**

10/098,501

**Examiner**

Matthew A. Anderson

**Applicant(s)**

MOTOKI ET AL.

**Art Unit**

1765

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment of 12/15/2003.
2. ☒ The allowed claim(s) is/are 1-10 and 21-24.
3. ☒ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

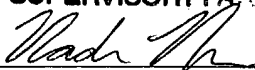
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**NADINE G. NORTON**  
**SUPERVISORY PATENT EXAMINER**



## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 6-16 of the remarks, filed 12/15/2003, with respect to claims 1-10, 21-24 have been fully considered and are persuasive. The rejection of claims 1-10 has been withdrawn for the reasons below.

### ***Allowable Subject Matter***

2. Claims 1-10, 21-24 are allowed.
3. The following is an examiner's statement of reasons for allowance:

In regard to claims 1-5, 23-24, the closest prior art does not disclose growing a non-C plane gallium nitride (GaN) bulk crystal and doping that growing gallium nitride bulk crystal via the non-C plane surface. The prior art makes no mention of a crystal orientation preference for oxygen doping. Additionally, in regard to claims 6-10, 21-22 the prior art makes no suggestion to grow a gallium nitride on a C-plane GaN seed crystal so that facets are formed and doping the growing bulk crystal (GaN) with oxygen via the non-C planes of the facets.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Examiner's Amendment***

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. Cancel the current abstract and replace with:

Oxygen can be doped into a gallium nitride crystal by preparing a non-C-plane gallium nitride seed crystal, supplying material gases including gallium, nitrogen and oxygen to the non-C-plane gallium nitride seed crystal, growing a non-C-plane gallium nitride crystal on the non-C-plane gallium nitride seed crystal and allowing oxygen to infiltrate via a non-C-plane surface to the growing gallium nitride crystal. Otherwise, oxygen can be doped into a gallium nitride crystal by preparing a C-plane gallium nitride seed crystal or a three-rotationally symmetric plane foreign material seed crystal, supplying material gases including gallium, nitrogen, and oxygen to the C-Plane gallium nitride seed crystal or the three-rotationally symmetric foreign seed crystal, growing a faceted C-plane gallium nitride crystal having facets of non-C planes on the seed crystal, maintaining the facets on the C-Plane gallium nitride crystal and allowing oxygen to infiltrate via the non-C-Plane facets to the gallium nitride crystal.

The examiner notes that this revision merely amends the case of "infiltrating" to "infiltrate" and combines the two paragraphs originally presented into one paragraph.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Anderson whose telephone number is (571) 272-1459. The examiner can normally be reached on M-Th, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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